Tinea corporis caused by Trichophyton equinum in a rider and review of the literature

Tinea corporis by *Trichophyton equinum* in a rider and review of the literature

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Abstract

Background *Trichophyton equinum* is a zoophilic dermatophyte that usually causes dermatophytoses in horses. Cases of skin infections in humans are very rare.
Case report We describe a case of *Trichophyton equinum* tinea corporis on a buttock in a rider who often rode bareback with short trousers.
Conclusion *Trichophyton equinum* was considered in the past as a strict zoophilic dermatophyte. The case we have described confirms that *Trichophyton equinum* can cause dermatophytoses also in humans.

Keywords *Trichophyton equinum* • Horses • Tinea corporis • Rider

Introduction

Trichophyton equinum is a zoophilic dermatophyte first described by Matruchot and Dassonville in 1898 and by Gedoelst in 1902. It usually causes dermatophytoses in horses, although cases in cattle, dogs, cats, camels and minks were also reported. Cases of skin infections in humans are very rare [1-19].
We describe a case of *T. equinum* tinea corporis on a buttock in a rider.

Case report

A 47-year-old rider was admitted to our Dermatology Unit because of an erythematous lesion on the left buttock. The patient stated that he was in good general health and that he was not in therapy with systemic drugs. He also declared that he often rode bareback with short trousers.

Dermatological examination revealed an erythematous lesion on the left buttock: it was approximately round, 6 cm in diameter, with small vesicles and pustules at the borders (Fig. 1). The patient complained of mild pruritus. Wood's lamp examination was negative.
General physical examination revealed anything pathological.
Laboratory tests were within normal ranges or negative. Bacteriological examinations were negative. Mycological examinations were positive: colonies grew within two weeks. They were white, with a fluffy surface, fringed borders and a yellow-orange pigment on the reverse (Figs. 2, 3). Test for urease was positive.
A diagnosis of tinea corporis caused by *T. equinum* was made.
The patient was successfully treated with 1% terbinafine cream (1 application/day for three weeks) and griseofulvin (10 mg/kg/day for three weeks).
Follow up (18 months) was negative.

Discussion

We were able to review the literature on human infections caused by *T. equinum* from 1950, when Walker reported five cases of tinea capitis, including two cases of kerion, and two cases of tinea corporis [1]. Two additional cases of tinea capitis were published in 1951 [2]. Since then, less than 20 cases were reported [3-18], most of them in United Kingdom [6,9,13], but also in Spain [10,11], Germany [14,18], Czech Republic [4], Finland [15], Malaysia [17], Japan [8], United States [12], Australia [5,7] and South Africa [3]. No cases were recorded in Italy.
Epidemiological studies on *T. equinum* dermatophytoses in humans are limited. In 1989, del Palacio et al. [10] recorded one case of *T. equinum* dermatophytosis out of 2.158 dermatophyte infections in Madrid. In a study carried out in Galicia from 1951 to 1987, *T. equinum* was isolated in one patient with tinea corporis from a group of 4.571 patients (3.351 isolates = 0.1% of all dermatophytes) [11]. Lastly, in a Malaysian study published in 2002, *T. equinum* was isolated in 0.2% of 576 dermatophytes [17].
T. equinum was responsible for tinea faciei [16], tinea corporis [1,8,11,12,14,16], tinea capitis [1,2,13,14,18] (with ectothrix modality of infection) [1,13,19] and onychomycosis [9,15] (distal and lateral subungual onychomycosis in one case) [9].
Dermatophytoses caused by *T. equinum* are considered as occupational infections in breeders, riders and veterinarians [6,8,9,15]. However, some cases were reported in whom the contact with the infected horse was very short: a 42-year-old woman and a 5-year-old boy, respectively, who had ridden a horse for half an hour [13,16]. Most patients are children [1,2,9,12,14,16,18]. The latency time may be very long (up to six months) [13].
The diagnosis of *T. equinum* infection is based on Wood's lamp examination (fluorescence is always negative, as in our patient) [2,13,19] and culture. Colonies, on different media, grow rapidly, usually within two weeks [9,12,15,16,18,19]. They are at first white, with a flat and fluffy surface, fringed borders and a yellow-orange pigment on the reverse [9,12,16,18,19]. Later, folds on the surface, with a red-brown pigment, appear [12,15,16]. Microscopy shows 2-3 μ in size microconidia; they present with different morphology: thin and elogated or oval, clavate, pyriform, globose, spherical microconidia [9,12,15,16,18,19]. Macroconidia are rare and usually thin, irregular in shape and size [16,18,19]. Test for urease is positive in 4 to 5 days [18].
T. equinum has special nutritional requirements, in particular nicotinic acid: equine hairs possess nicotinic acid precursors or nicotinic acid while the hair of non-equine

species, including humans, do not [12,15,18-20]. The nicotinic acid test is helpful in order to differentiate *T. equinum* from *T. mentagrophytes* (also *T. mentagrophytes* var. *interdigitale*) and *T. quinckeanum* [20]. *T. tonsurans* colonies are similar to those of *T. equinum.* In the last few years, a comparative analysis of secreted enzymes between the two species was performed [21]. A discrimination by means of PCR-RFLP and β–tubulin and translation elongation factor I-α sequencing was also carried out [22,23]. However, despite the genetic similarity of *T. equinum* and *T. tonsurans*, the first species is a zoophilic dermatophyte with horses as main hosts and a very low number of cases reported in humans, while *T. tonsurans* is a strictly anthropophilic species [18]. Therefore, medical history gains a great importance for the diagnosis. *T. equinum* showed to be sensitive in vivo to griseofulvin [8,9,12,18], ketoconazole [12], topical [16] and oral [13,15,16] terbinafine, econazole [7], miconazole [9] and ciclopirox [18].

In conclusion, *T. equinum* was considered in the past as a strict zoophilic dermatophyte. The case we have described confirms that *T. equinum* can cause dermatophytoses also in humans.

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Legends

Fig. 1 Tinea corporis located on the left buttock
Fig. 2 White and fluffy surface, and fringed borders of colonies of *Trichophyton equinum.*
Fig. 3 Yellow-orange pigmentation on the reverse